

**NDIA 2000 TECHNOLOGY AVANCEMENTS IN
MUNITIONS MANUFACTURING SYMPOSIUM**

**UPDATE ON THE MODERNIZATION OF
THE HOLSTON ARMY AMMUNITION
PLANT (HSAAP)**

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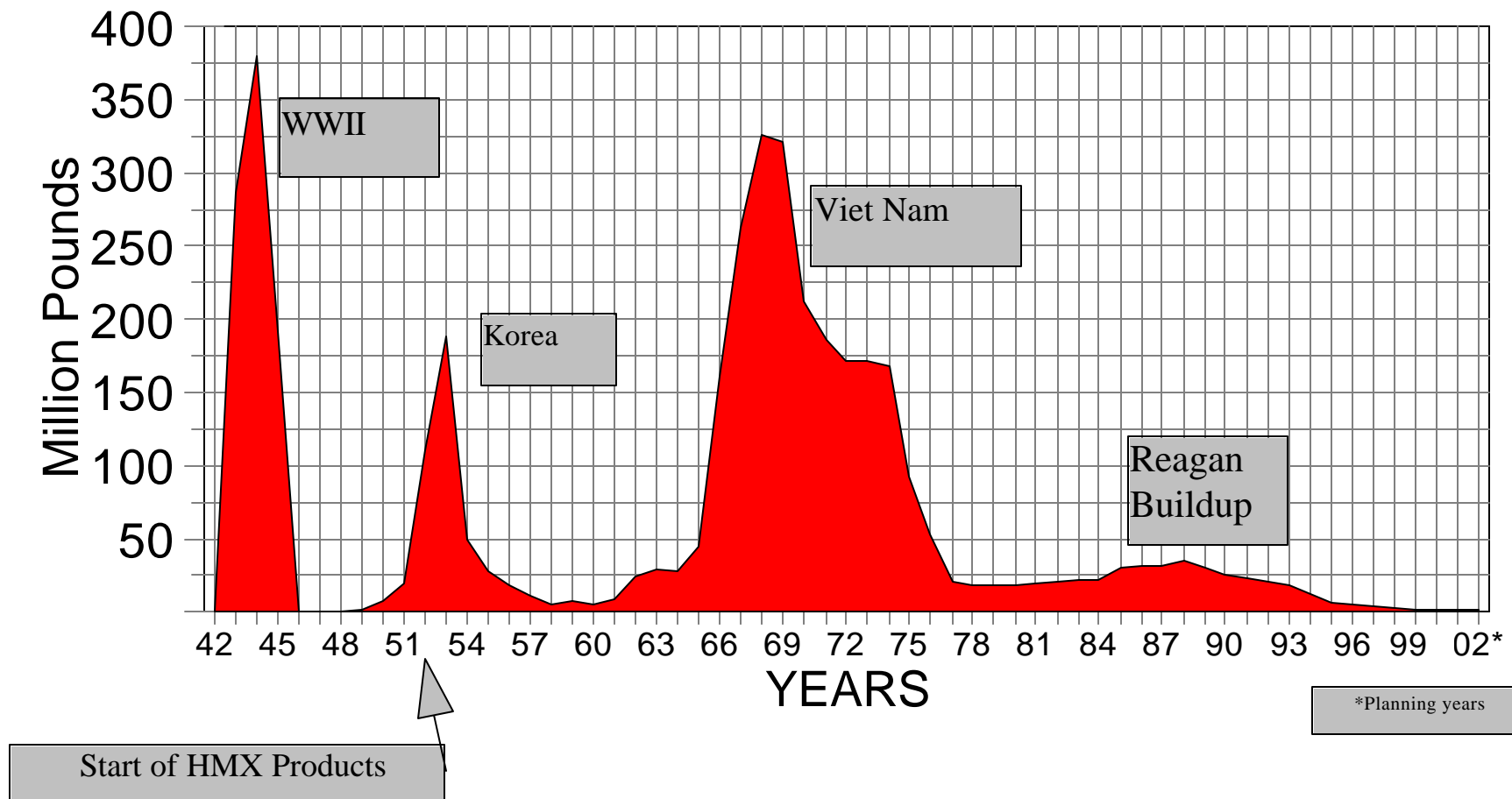
BAE SYSTEMS

HSAAP MODERNIZATION

Background

- **U.S Producer of RDX/HMX Products Since 1943**
- **Historically Configured for Very High Volumes**
 - **»1m LB / day**

HSAAP - HISTORICAL PRODUCTION LEVELS

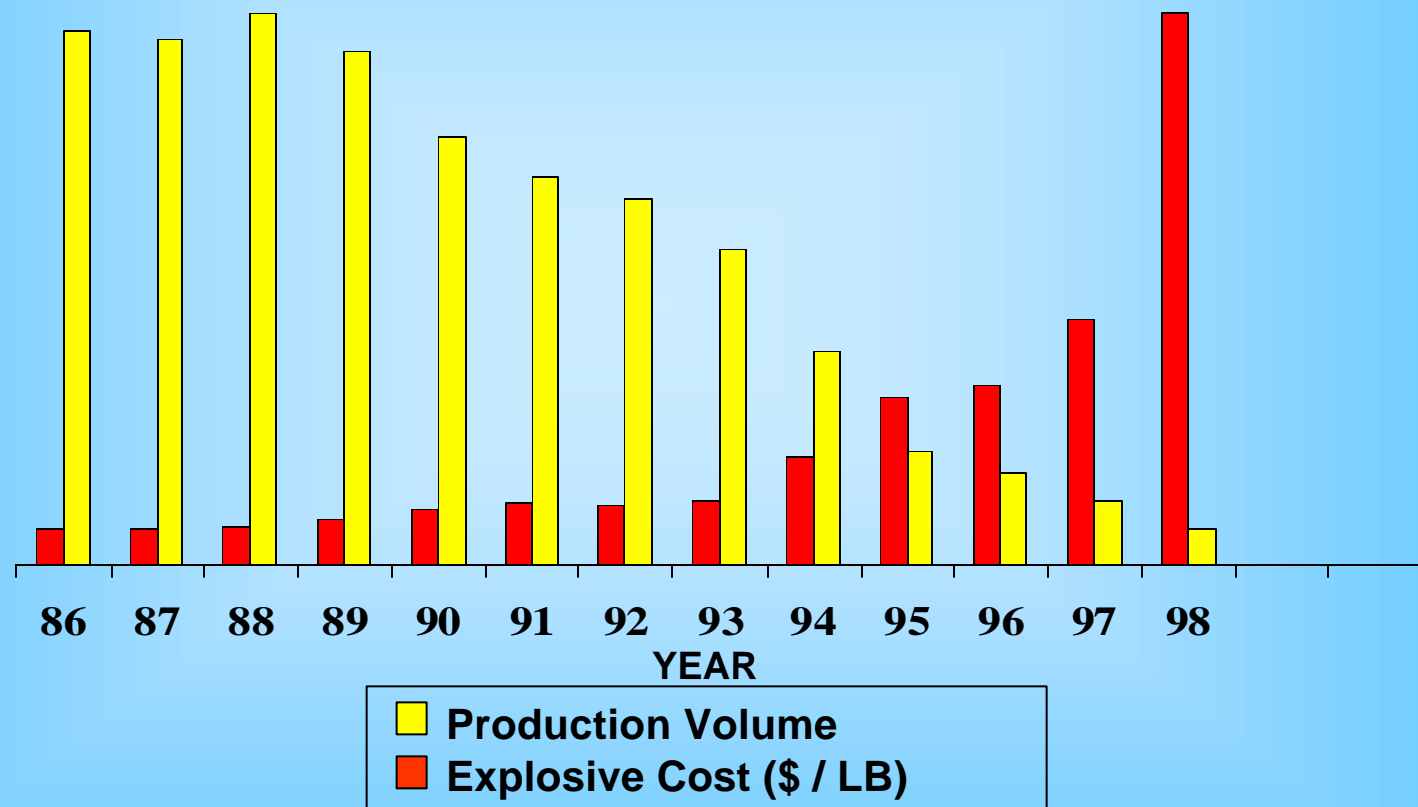


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- **Operating on Modern Peacetime Volumes**
 - »2m LB / year
- **Escalating Product Costs**

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- **Escalating Product Costs**
- **Resulted in Competition to Supply Explosives**
 - **XMAT Contract Awarded to RONA**

HSAAP MODERNIZATION

Summary

- **\$15m Investment (1999 / 2000)**
 - **Infrastructure Upgrades**
 - **Minimizing Manual-Handling of Product**
 - **Reducing the Number of Operating Buildings**
 - **Centralized control room**
- **Maintaining Product Quality**
 - **Same Equipment, People & Processes**
 - **»90% RONA staff are former HDC employees**

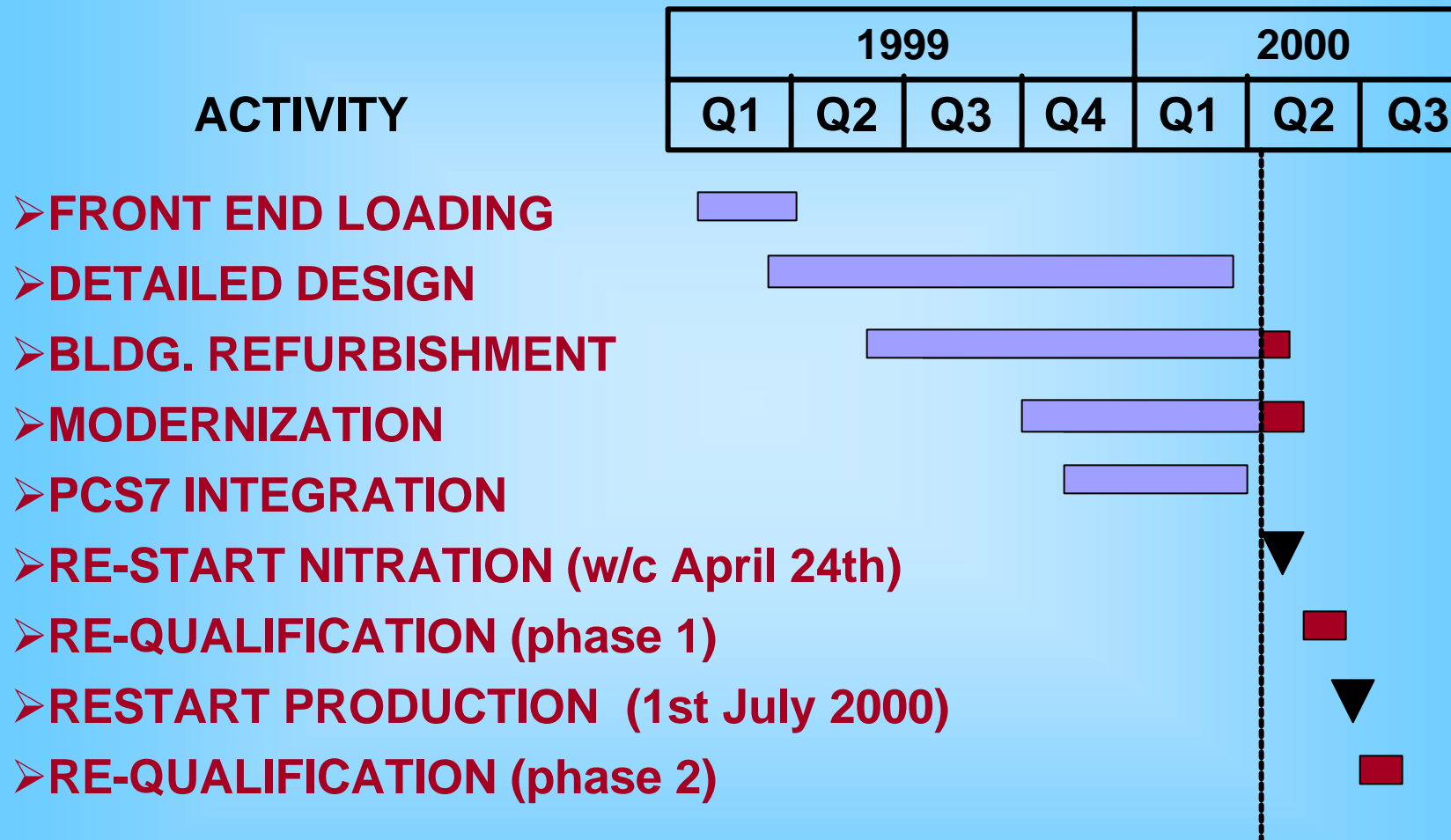
HSAAP MODERNIZATION

Progress

- **Design Work Completed**
- **New Gas Fired Boiler for Acid Plant**
- **Hydraulic Motors Installed**
- **Product Lifting Tables Installed**
- **Centralized Control Room Established**

HSAAP MODERNIZATION

Project Time Scale & Status



Legend:  - Complete  - Ongoing  - Milestone

BAE SYSTEMS

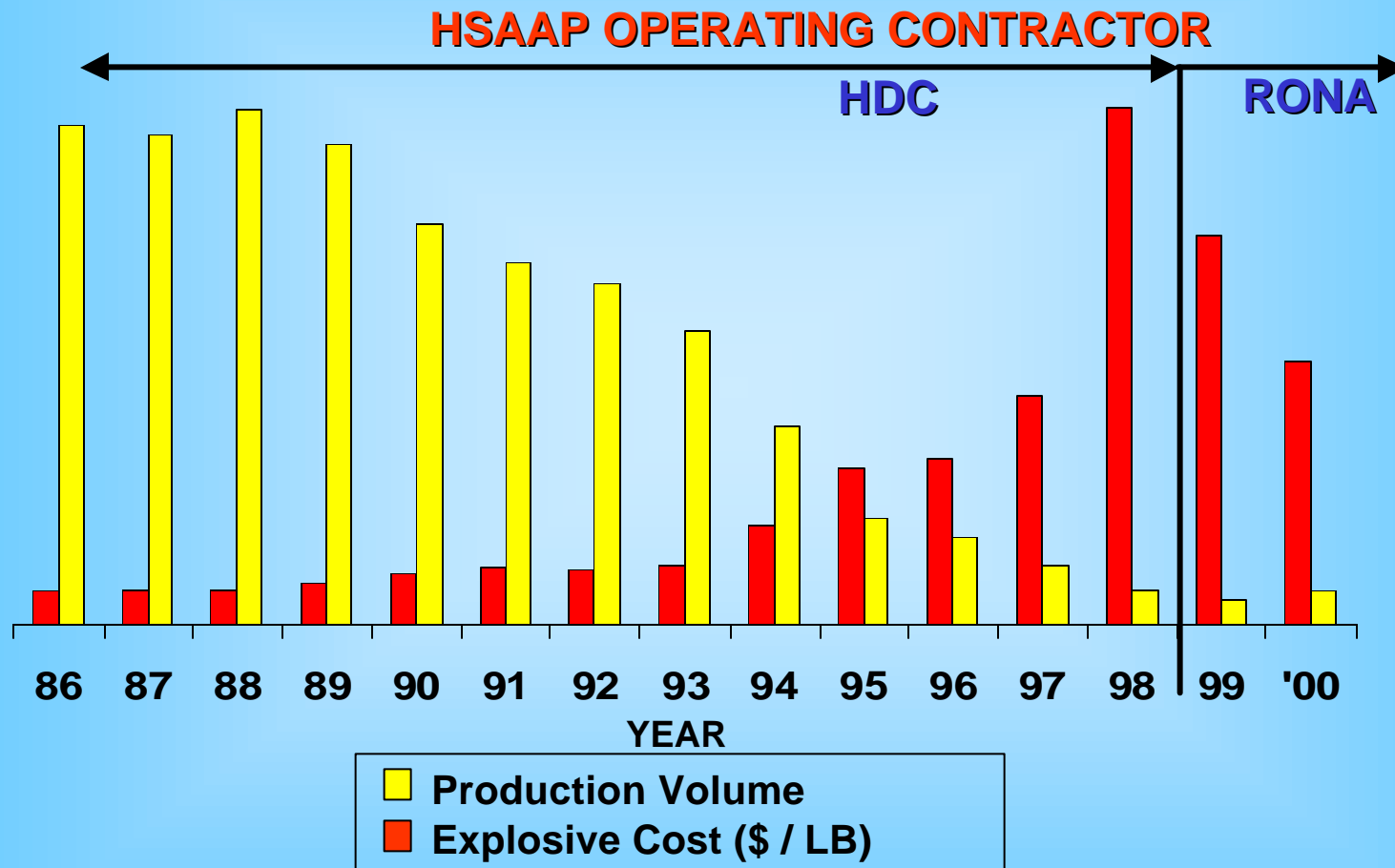
HSAAP MODERNIZATION

Impact on Manufacturing Process

- **NO CHANGE TO HSAAP MANUFACTURING PROCESSES**
 - Same Equipment
 - Same Processes, Procedures and Specifications
 - Same People
 - »90% of RONA Employees (115) are ex-HDC (1998)
 - Additional recruitment of ex-HDC staff planned (2000)
- **PRODUCT RANGE UNCHANGED**
 - Additional Products Planned

HSAAP MODERNIZATION

Impact on Product Costs



BAE SYSTEMS

HSAAP MODERNIZATION

Impact on Product Costs - Examples

<i>PRODUCT</i>	HDC <i>1997/8 (\$/lb)</i>	RONA <i>1999/2000 (\$/lb)</i>
<i>PBXN-5</i>	55.26	< 22
<i>PBXN-9</i>	31.65	< 19
<i>CXM-3</i>	9.11	< 7.5
<i>HMX / Cl. 1</i>	37.77	< 22
<i>RDX / Cl. 1</i>	15.91	< 6
<i>RDX / Cl. 5</i>	15.91	< 7

NOTE - HDC's production volume in 1997 was approximately twice the projected RONA volume in 2000. Prices not adjusted for inflation.

HSAAP MODERNIZATION

HSAAP Re-qualification

- **HSAAP PRODUCTS NEED SOME LEVEL OF RE-QUALIFICATION**
 - **To Confirm Processes and products are Unchanged**
- **RE-QUALIFICATION PLANNING COMMENCED (Q4/99)**
 - **Controlled by U.S. Army, Navy, Air Force, Marine Corps**
- **RONA RE-QUALIFICATION PROCESS**
 - **Manufacture Full Scale Batches of Products**
 - **On-site and off-site Testing**
 - **Manufacture and Testing Witnessed by DoD Representative**
 - **Re-qualification is in Two Phases To Meet Customer Needs**
- **TIME SCALE**
 - **Re-qualification to Start in May 2000**

HSAAP MODERNIZATION

Conclusions

- **HSAAP Modernization is the Cornerstone of RONA's Plans to Reduce the Cost of Explosive Manufacture**
- **Key modernization Objectives Include Improved Infrastructure, Minimized Product Manual-Handling and Reduced number of Operating Buildings (38 to 22)**
- **Product Range and Manufacturing Skills Unaffected; Critical Skills Have Been Retained by RONA**
- **HSAAP Re-qualification Planning Process Agreed**
- **HSAAP Resumes Production from w/c 24th April 2000**

HSAAP MODERNIZATION

Acknowledgements

Jerry Hammonds (RONA, Manager Explosives)

Bill May (RONA Modernization Project Manager)

Dan Gothard (RONA Project Engineer)